

Appl. No. 10/790,521  
Amdt. Dated 07/24/2006  
Reply to Office action of March 22, 2006

### REMARKS/ARGUMENTS

This is in response to an Office action dated 03/22/2006.

#### Status

Claims 1-14 are pending

Claims 1-14 are rejected

#### Claim Rejections

Claims 4 and 5 was rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 recites the limitation "the cylinder" in line 2. There is insufficient antecedent basis for this limitation in the claim. This has been corrected by changing the dependency to claim 3 and therefore this rejection is moot and should be withdrawn.

Claims 7 - 11 was rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 recites the limitation "the side elongate elements" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim 7 recites the limitation "the two side elongate elements" in line 4. There is insufficient antecedent basis for this limitation in the claim. This has been corrected by amending "the side elongate elements" in line 3 of claim 7 to "the two side elongate elements" and therefore this rejection is moot and should be withdrawn.

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### **Claim Objections**

Claim 1 was objected to because of the following informalities: approximately is misspelled. The appropriate correction has been made.

Claim 14 was objected to because of the following informalities: respect is misspelled. The appropriate correction has been made.

### **The Invention**

The method and apparatus of present invention incorporates a conveyor belt system and a splitter plate system disposed at a position forward of the end of the conveyor belt system. The invention is designed for separating shredded trash into light plastic (polyethylene and styrene) and paper materials, such as dry cleaning bags and shopping bags, and heavier materials such as plastic (polyvinylchloride containing materials), textile and paper materials. The conveyor belt system includes a conveyor belt that carries shredded trash to a roller at one end. An air manifold is positioned underneath and approximately at the end of the conveyor belt, and blows an air stream generally in the direction of travel of the conveyor belt. As the pieces of trash exit the end of the conveyor belt, they will be blown by the airstream towards the splitter plate system.

The splitter plate system includes a cylinder that is essentially parallel to the roller at one end of the conveyor belt and which can rotate at a desired speed. Preferably, the cylinder rotates in the same direction as the roller.

A first accumulation area for collecting the heavier pieces of trash is defined as the area between the conveyor system and the splitter plate system. A second accumulation area for collecting the lighter pieces of trash is on the side of the splitter plate system which is distal the conveyor system.

In operation, as the pieces of trash exit the end of the conveyor belt, the lighter pieces of trash will be projected by the airstream over the cylinder of the splitter plate system and fall in the

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second accumulation area. The heavier pieces of trash won't be propelled as far by the airstream and will fall into first accumulation area.

In order to control the amount of the lighter pieces of trash material which makes it over the cylinder, certain parameters can be easily changed. These include one or combinations of the following:

- adjusting the speed of the conveyor belt;
- adjusting the angle of the conveyor;
- adjusting the angle of the airstream;
- adjusting the pressure of the airstream;
- adjusting the distance between the cylinder and the roller;
- adjusting the height of the cylinder;
- adjusting the speed and direction of rotation of the cylinder; and
- changing the surface texture of the cylinder.

Two of the parameters which are very important are the distance of the cylinder from the head and the speed and direction of rotation of the cylinder. The distance of the cylinder from the head control the amount of the lighter pieces of trash material which makes it over the cylinder. By moving the cylinder further from the head, less of the lighter material will cross over the cylinder and the degree of lightness can thereby be controlled. The direction of rotation of the cylinder is important because it keeps the material from accumulating on the cylinder and causing a reduction of the amount of material crossing the cylinder.

#### **Claim Rejections under 35 USC 102**

Claims 1, 4, 5, 6 and 12 - 14 were rejected under 35 U.S.C. 102(b) as being anticipated by Roman.

The Office Action stated that the Roman reference discloses a first conveyor system having a conveyor belt (18) wrapping around a roller (24) at an end of the conveyor belt, and conveying the pieces shredded trash, in a direction, to the end of the first conveyor system (Fig. 4); an air

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manifold (116) positioned underneath and approximately at the end of the conveyor belt for providing an air stream (Fig. 4) which is generally in the direction of travel of the conveyor belt; and a splitter plate system (164) disposed at a position forward of the end of the conveyor, comprising an elongate element (166) which is essentially parallel to the roller at the end of the conveyor.

Applicant notes that the Roman reference applies water or an aqueous solution to the material as it enters the separation stage by a transverse conduit 48. Column 5 lines 28-52. Then the material having been wetted by conduit 48 exits from belt 18 at head pulley 24 falls by gravity somewhat vertically downward. The material initially falls upon a chute 92. See column 6 lines 22-30. The outlet of chute 92 serves to position the falling stream of waste particles ... at which position the material encounters a stream of air. See column 6 lines 47-50. Then the material is blown into an apparatus 50 which is fixed into place to accommodate two conveyors 82 and 84. There is a pivoting deflector 164 which is adjusted by an operator. Column 7 lines 63-64.

Claim 1 has been amended to incorporate a first conveyor system with a conveyor belt having

- a direction of travel to the roller at the one end,
- an air manifold positioned underneath .... for blowing the pieces of shredded trash exiting the conveyor belt with an air stream which is generally in the direction of travel of the conveyor belt to the roller at one end;
- a splitter plate system .....comprising a cylinder .... parallel to the roller at the end of the conveyor belt;
- means for moving the splitter plate system towards and away from the first conveyor system.

The Roman reference fails to teach or suggest an air manifold positioned underneath .... for blowing the pieces of shredded trash exiting the conveyor belt with an air stream which is generally in the direction of travel of the conveyor belt to the roller at one end because the wetted material having exiting at head pulley 24 of Roman falls upon a chute 92.

The Roman reference fails to teach or suggest a splitter plate system comprising a cylinder

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parallel to the roller at the end of the conveyor belt because the "splitter plate system 50" of Roman incorporates a pivoting deflector 164.

The Roman reference fails to teach or suggest means for moving the splitter plate system towards and away from the first conveyor system because Roman's apparatus 50 is fixed into place to accommodate the two conveyors 82 and 84.

Accordingly, claim 1 should be allowable over Roman.

With regards to method claim 12 as amended, the following steps are not described in Roman for the reasons cited before:

- a) blowing the pieces of shredded trash exiting at the end of the conveyor
- b) moving the splitter plate system with respect to the first conveyor system so that the relatively lighter pieces of material will be projected over the cylinder

Since neither of these steps are taught or suggested by the Roman reference, claim 12 should be allowable.

Claims 1 - 4, 7 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Wilbur et al.

The reference discloses a first conveyor system having a conveyor belt (44) wrapping around a roller (54) at an end of the conveyor belt, and conveying the pieces, in a direction, to the end of the first conveyor system; an air manifold (col. 3, lines 64+) positioned underneath and approximately at the end of the conveyor belt for providing an air stream which is generally in the direction of travel of the conveyor belt; and a splitter plate system (74) disposed at a position forward of the end of the conveyor, comprising an elongate element (42) which is essentially parallel to the roller at the end of the conveyor. "Shredded trash" is intended use and not given patentable weight. Examiner contends that the air stream is generally in the direction of travel of the conveyor belt. What is the general direction of travel of the conveyor belt? At some point they are in the same direction as the belt passes around the roller. Furthermore, Examiner contends that the manifold is sufficiently positioned underneath the conveyor belt as shown in

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Fig. 1.

Applicant respectfully submits that the device of Wilber is very different from the present invention. Wilber uses optical sensing devices (cameras) to detect objects by their optical characteristics. Off spec objects identified by the cameras are hit with a jet of air to selectively remove the off spec material. In operation, Wilbur transports meat chunks on a conveyor belt at a high enough velocity to project the meat chunks from the edge of the conveyor belt in trajectory 66. Column 4, lines 21-24.

Claim 1 has been amended to incorporate a first conveyor system with a conveyor belt having

- a direction of travel to the roller at the one end,
- an air manifold positioned underneath underneath and approximately at the end of the conveyor belt.... for blowing the pieces of shredded trash exiting the conveyor belt with an air stream which is generally in the direction of travel of the conveyor belt to the roller at one end;
- a splitter plate system .....comprising a cylinder .... parallel to the roller at the end of the conveyor belt;
- means for moving the splitter plate system towards and away from the first conveyor system.

Wilbur does not have an air manifold positioned underneath and approximately at the end of the conveyor belt for blowing the pieces of shredded trash exiting the conveyor belt with an air stream which is generally in the direction of travel of the conveyor belt to the roller at one end. Instead, Wilbur operates the a conveyor belt at a high enough velocity to project the meat chunks from the edge of the conveyor belt in trajectory. While Wilbur does incorporate a fluid ejection manifold to selectively direct blasts of pressurized fluid like compressed air against the meat chunks being projected in trajectory 66 from the edge of the conveyor belt. The meat removed from the trajectory 66 by the blasts of compressed air to outfeed chute 68 (column 3 line 64 to column 4 line 1). To accomplish this, the air stream must be directed from above the trajectory 66 instead of using "an air manifold positioned underneath underneath and approximately at the

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end of the conveyor belt... for blowing the pieces of shredded trash exiting the conveyor belt with an air stream which is generally in the direction of travel of the conveyor belt to the roller at one end. " Still further, Wibur does not teach or suggest "means for moving the splitter plate system towards and away from the first conveyor system." Accordingly claim 1 should be allowable.

With regards to claim 7 as amended, Wibur does not teach or suggest "means for moving the splitter plate system towards and away from the first conveyor system." Accordingly claim 7 should be allowable.

Claims 7-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Kaufmann.

The reference discloses a structural frame having opposite side elements (68) and a bottom elongate element (68) extending between the side elongate elements; and a splitter sheet (65) hanging from the two side elongate elements.

Applicant respectfully submits that Claim 7 as currently amended, discloses a splitter plate system for use in conjunction with a conveyor system comprising:

- a structural frame having opposite side elongate elements and a bottom cylinder extending between the side elongate elements;
- means for adjusting the speed and direction of rotation of the cylinder;
- a splitter sheet hanging from the two side elongate elements; and
- means for moving the structural frame towards and away from the conveyor system.

Kauffman does not teach or suggest using a splitter plate system with:

- a) a bottom cylinder extending between the side elongate elements;
- b) means for means for adjusting the speed and direction of rotation of the cylinder; or
- c) means for moving the structural frame towards and away from the conveyor system.

With regard to the cylinder, Kaufmann discloses „roller guide means“ and not means for adjusting the speed and direction of rotation of the cylinder.

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As to the last point, Kauffman states the hoppers are placed or built into the floor (column 4 lines 49-50) and don't include the "means for moving" as now claimed.

Accordingly claim 7 should be allowable.

### **Rejection(s) under 35 U.S.C. 103**

Claims 1 – 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilbur et al.

The reference discloses a first conveyor system having a conveyor belt (44) wrapping around a roller (54) at an end of the conveyor belt, and conveying the pieces, in a direction, to the end of the first conveyor system; an air manifold, and a splitter plate system (74) disposed at a position forward of the end of the conveyor, comprising an elongate element (42) which is essentially parallel to the roller at the end of the conveyor. "Shredded trash" is intended use and not given patentable weight.

For the reasons set forth above regarding the 102 rejection of claim 1 by Wilbur, claim 1 as now amended overcomes the 103 rejection.

Claim 1, as currently amended, sets forth an air separator system for separating shredded trash into pieces of relatively light material and relatively heavy material, comprising:

- a first conveyor system having a conveyor belt having a direction of travel to a roller;
- an air manifold for blowing the pieces of shredded trash exiting the conveyor belt;
- a splitter plate system comprising a cylinder which is essentially parallel to the roller; and
- means for moving the splitter plate system towards and away from the first conveyor system.

These features in combination are not taught or suggested by the prior art taken alone or in combination and therefore claim 1 should be deemed allowable.

Claims 3-6 depend on claim 1 and should also be allowable.



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Claim 7, as currently amended, sets forth a splitter plate system for use in conjunction with a conveyor system comprising:

- a structural frame having a bottom cylinder;
- means for adjusting the speed and direction of rotation of the cylinder; and
- means for moving the structural frame towards and away from the conveyor system.

These features in combination are not taught or suggested by the prior art taken alone or in

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